Methodological Approach for Modeling of Multienzyme in-pot Processes

This paper presents a methodological approach for modeling multi-enzyme in-pot processes. The methodology is exemplified stepwise through the bi-enzymatic production of N-acetyl-D-neuraminic acid (Neu5Ac) from N-acetyl-D-glucosamine (GlcNAc). In this case study, sensitivity analysis is also used to evaluate the reliability of all parameters of the model suggested in literature [5]. Results, from the sensitivity analysis, are used as criteria for a systematic simplification of the model structure. Consequently, model complexity was reduced without compromising the general predictive performance. A deviation of less than 5% from the original model was found.